IN THE SPECIFICATION:

The specification as amended below with replacement paragraphs shows added text with underlining and deleted text with ~~strikethrough~~.

Please REPLACE paragraph [0023] with the following paragraph:

[0023] The above and/or other aspects and advantages of the present invention will become apparent and more readily appreciated from the following description of the embodiments, taken in conjunction with the accompany drawings of which:

FIG. 1 is a cross-sectional view of a position detection sensor for a piston of a conventional linear compressor;

FIG. 2 is a diagram of a position detection circuit for the piston of the conventional linear compressor;

FIG. 3 is a waveform of an amplifier according to reciprocal movement of the piston of the conventional linear compressor in FIG. 2;

FIG. 4 is a cross-sectional view of a position detection sensor for a piston of a linear compressor according to an embodiment of the present invention;

FIG. 5 is a block diagram of a position detection circuit for the piston of the linear compressor according to the embodiment of the present invention;

FIGS. 6A-6C and 7A-7C are waveforms of a voltage comparator according to reciprocal movement of the piston of the linear compressor;

FIG. 8 is~~illustrates an output waveform of the voltage comparator~~a characteristic of inductances L1, L2 of a first and a second sensor coil 2a, 2b according to the position of the piston of the linear compressor according to the embodiment of the present invention;

FIGS. 9A and 9B illustrate the position of the piston according to the embodiment of the present invention corresponding to passage of time.

Please REPLACE paragraph [0038] with the following paragraph:

[0038] FIG. 8 ~~is a waveform that is output from the voltage comparator 11~~ illustrates a graph of difference value L1-L2 that subtracts the inductance L2 of the second sensor coil 2b from the inductance L1 of the first sensor coil 2a according to a position of the piston of the linear compressor according to an embodiment of the present invention. As illustrated in FIG. 8, a

waveform "c" has three zero points ~~and corresponds to the input waveforms illustrated in FIGS. 6B and 7B~~.

Please REPLACE paragraph [0039] with the following paragraph:

[0039] The ~~output waveform of the voltage comparator 11~~ difference value L1-L2 graph passes through a first zero point as a middle point (will be referred to as a core origin), between the upper core 4a and the lower core 4b, passes the coil origin.

Please REPLACE paragraph [0040] with the following paragraph:

[0040] The difference value L1-L2 graph~~An output V_0 of the voltage comparator 11~~ has a second zero point in a top area if the upper core origin of the upper core 4a passes the coil origin, and the difference value L1-L2 graph~~output V_0 of the voltage comparator 11~~ has a third zero point in a bottom area if the center point of the lower core 4b passes the coil origin.

Please REPLACE paragraph [0041] with the following paragraph:

[0041] When the the difference value L1-L2 graph~~output V_0 of the voltage comparator 11~~ is at the second zero point during the compression stroke of the piston, the piston is at a top origin position. The top origin position is also passed during an extension stroke. The top origin is a fixed position, and an exact position of the top dead center can be estimated by measuring the amount of time that the piston takes to pass the top origin twice, once during the compression stroke and once during the extension stroke.

Please REPLACE paragraph [0042] with the following paragraph:

[0042] Also, the position of the top dead center can be estimated based on the duration of time that passes before the difference value L1-L2 graph~~output V_0 of the voltage comparator 11~~ passes the second zero point having a zero output in the top area twice.

Please REPLACE paragraph [0043] with the following paragraph:

[0043] A ~~waveform~~graph "d" in FIG. 8 is ~~the~~another graph of a difference value L1-L2 that subtracts the inductance L2 of the second sensor coil 2b from the inductance L1 of the first sensor coil 2a ~~output waveform V_0 of the voltage comparator 11~~ when the external environmental conditions of the sensor such as a temperature, and pressure have changed. The waveform "d" illustrates that the zero points do not vary regardless of changes to the external environment. Accordingly, the top dead center can be found accurately on the basis of the top origin that is not affected by the external environment, and the position of the piston can be controlled based on the aforementioned.